Liquid Radioactive Waste Tank Closures

The Savannah River Site (SRS) is home to the first two liquid radioactive waste tank operational closures in the nation. Those two closures marked a major milestone in stabilizing another portion of Cold War legacy materials for the site and the country.

Tank 20, the first closed, was certified closed by the South Carolina Department of Health and Environmental Control (SCDHEC) in July 1997. SCDHEC certified closure of Tank 17 in December 1997. Both tanks had been constructed from 1956 through 1958; Tank 20 was first used in 1960, and Tank 17 was first used in 1961.

Use of Tank 20 and Tank 17 was no longer required to support tank farm operations. The U.S. Department of Energy, SCDHEC, the U.S. Environmental Protection Agency, SRS workers and the public worked closely together to establish strict closure requirements that supported all state and federal regulations.

Closure activities began years before the actual closing of the tanks. First, contaminated salt waste and sludge were removed from the tanks to the extent practical, while agreements and closure plans with state and federal regulators were finalized. Once these steps were completed, the closure activities began, with workers pouring specially formulated grout, a cement-like substance, into the 1.3 million-gallon tanks. First a special grout was added to chemically retard the leaching and migration of the waste. Over the course of several weeks, the tanks were filled with controlled low-strength material (a cement-like backfill) to within a few feet of the top. Then the balance of the empty tanks was filled with very high-strength cement.

Grouting reduces risks to human health and the environment by stabilizing residual waste in the tanks, which minimizes the potential for groundwater contamination.

To reach the tank closure goals, workers had to build, test and deploy new technology and tools to remove waste from the tanks. In addition, special grout testing helped determine how to best pour the grout into the tanks to stabilize the remaining waste and the tank structure.

The two closed tanks are part of the 51 underground tanks used in the site's F and H Area Tank Farms to hold liquid radioactive waste generated from weapons material production during the Cold War. This radioactive waste from the tank farms has been concentrated in evaporators over the years to reduce its volume and is currently stored as 36 million gallons in 49 underground carbon-steel waste tanks. The most intensely radioactive waste is being sent to the site's Defense Waste Processing Facility, where it is being immobilized in glass for safe storage.

In accordance with the process prescribed in the *Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005*, Section 3116, a plan for closure of Tank 19 and Tank 18 was submitted to DOE Environmental Management on September 30, 2005. Following the rigorous approval and permitting process, those tanks will be the third and fourth at SRS to be closed.

SRS waste tanks have provided more than 50 years of safe storage for radioactive waste. The site's goal is to safely close all waste tanks.

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